

Interactive comment on “Diurnal variations of stratospheric ozone measured by ground-based microwave remote sensing at the Mauna Loa NDACC site: measurement validation and GEOSCCM model comparison” by A. Parrish et al.

Anonymous Referee #3

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This paper presents an intercomparison of ozone datasets with the aim to tease out small diurnal variations in stratospheric ozone. The comparisons are thorough, convincing and certainly merit publication. While this is a potentially very good paper, I did feel, however, that they didn't go quite far enough. As the authors do note, there is a rich literature on this from Huang et al and also Haeferle and yet the authors do not adequately place their results in context with these earlier studies. Do they agree? For example for Day 85, Huang et al (2010) (their Figure 5) show a decrease in the afternoon at 30 hPa which they believe to be real. It appears, based upon the comments at

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the very end of Section 4, that the present authors disagree. If so, they should say so.

The final comparison of the present paper is limited to March. One wonders if another figure for a solstice case would be any different. For example, Huang et al [2010] show both day 85 and day 180 analyses and Haeferle et al have a section on seasonal variations. Perhaps at the relatively low latitudes of Hawaii, seasonal variations are less important. But this would be good to clarify.

I do not think the above comments would require much work to address; however, I certainly would suggest adding another figure, for a different season, to complement Figure 8 and another couple of paragraphs of discussion where they put their results in context. Since the existence of the afternoon stratospheric ozone enhancement is not a new result, their results are more of a confirmation (albeit the most comprehensive that has been presented) rather than a discovery and this should be explicitly stated. Very minor comment: For Figure 3, I was a bit confused (line 15 of text) Which of the colored curves is the best? Is it the black curve? Is this what is used to create the bottom panel?

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